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RESIDENT'S FORUM

Annular erythematous plaques on the right chest wall of a 55-year-old woman

Case report

A fifty-five-year-old postmenopausal woman first visited our dermatological department in February 2009 because of a history of progressive appearance of annular pruritic plaques on the right chest wall for 1 month (Figure 1). She had went to multiple local medical doctors for help; and under the impression of eczema or fungal infection, the patient was treated empirically with topical steroid and antifungal drugs, but the therapeutic response was poor. On physical examination, an annular lesion with central clearing and erythematous border was detected on her right chest wall. A potassium hydroxide preparation test was performed but no fungal elements were detected. Then a diagnostic skin biopsy was performed (Figures 2A and 2B).

Figure 1 Annular erythematous plaques on the right chest wall.

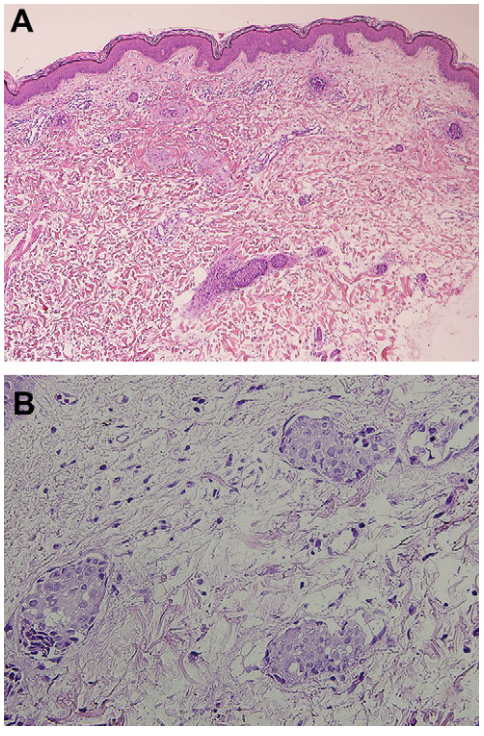

Figure 2 (A,B) Aggregates of tumor cells within the dilated endothelial lined spaces in the upper dermis. (H&E, original magnification (A) ×40; (B) ×200).

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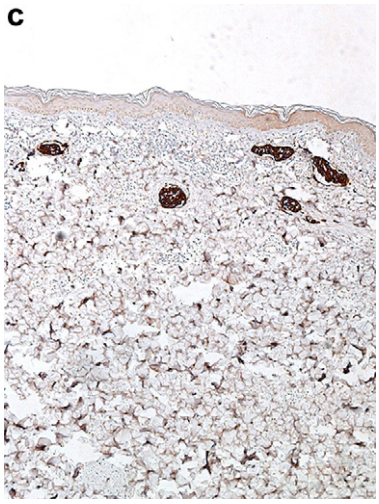

Figure 2 (C) The tumor cells within dermal lymphatic vessels were positive for Cytokeratin7 expression (original magnification×200). H&E = hematoxylin and eosin stain.

Diagnosis

Inflammatory metastatic carcinoma.

Discussion

The biopsy specimen from the erythematous border of the annular lesion revealed aggregates of tumor cells within the dilated endothelial lined spaces in the upper dermis (Figure 2A). The tumor cells, which filled these dermal lymphatic vessels, had scant cytoplasm and hyperchromatic nuclei (Figure 2B). The immunohistochemical study showed that these tumor cells were positive for Cytokeratin 7 (Figure 2C) and negative for Cytokeratin 20. Tracing back her history, she was diagnosed with invasive ductal carcinoma of the right breast in August 2008. She had received a modified radical mastectomy, axillary lymph node dissection, and six cycles of chemotherapy. The diagnosis of metastasis breast carcinoma was confirmed. Bone scan was performed and revealed multiple metastases to the bone. Subsequently, the patient was treated with various antineoplastic regimens, including chemotherapy and radiation therapy. However, the patient did not respond to these treatments and died in July 2009.

Breast cancer is the most common tumor that metastasizes to skin and account for 24% of skin metastasis.[1] Timucin et al[2] reported that the most common metastatic area of skin from breast caner is the chest wall (39%), the face (22.2%), the neck (9%), the scalp (13.5%), and the abdominal wall and other localizations (30.5%).

Several types of cutaneous metastases are unique to breast cancer. Inflammatory skin metastases of carcinoma erysipelatoides presents as an erysipelase-like patch or plaque with sharply marginated borders. This type of lesion is secondary to dilated dermal and subcutaneous lymphatics, which are plugged with tumor cells. Our patient conformed to the diagnosis of inflammatory skin metastases but did not have the characteristic clinical presentation of carcinoma erysipelatoides. Annular erythematous plaques are a rare presentation of breast cancer skin metastasis and may be misdiagnosed if biopsy is not performed. Clinical presentation of different skin diseases, including erythema annulare centrifugum, erythema gyratum repens, and tinea infection, may appear as figurate erythema, but the mechanism remains obscure. Stone[3] proposed that the distinctive characteristics of figurate dermatoses may be attributed to the localized ground substance adaptive phenomenon with involvement of cellular immunity modulation. The acute inflammatory reaction releases connective tissue-active peptides (CTAP), which stimulate glycosaminoglycans and fibroblast proliferation in the local papillae, and may result in the formation of annular erythematous plaques. CTAP triggers increased viscosity, elongation of dermal papillae and capillaries producing edema, and may result in dilution of tissue fluids and spread of the inflammatory reaction to the adjacent papillae. Under normal immune reactivity, CTAP should prevent the spread of mediators and products of local inflammation. However, in the host with highly reactive immune response, it could terminate with the peripheral spread. The annular erythematous plaques in our patient could be considered as a peculiar immunologic hypersensitivity reaction of the host against the tumor cells.[3,4]

Hu et al[5] showed that the prognosis of patients with skin metastasis of breast cancer depended on the advancement of the cancer. In a study of Taiwanese population, the 1-, 3-, 5-, and 10-year cumulative overall survival rates of breast cancer patients with only skin metastasis were 79%, 51%, 37%, and 11%; and for those with skin and visceral metastasis, the survival rates were 43%, 27%, 22%, and 0%, respectively. These results indicated that breast cancer patients with only skin metastasis have significant better survival than those with metastasis not confined to the skin. In our patient, she was found to have skin and bone metastasis and died within 1 year.

We emphasize that when a benign-looking skin lesion is resistant to conventional therapy, searching for a detailed clinical history, including an underlying malignancy, is important. Therefore, in patients with a history of malignancy, skin biopsy should be considered in all atypical or persistent inflammatory lesions. The timely identification of cutaneous metastases enables the physician to suggest the most appropriate therapeutic plan, which may ultimately prolong the survival of cancer patients.

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References

1. Richard AK, Ida FO, Ted R. Cutaneous metastasis: a meta-analysis of data. *South Med J* 2003;**96**:164–7.
2. Timucin C, Abdullab A, Semir P, et al. Atypical skin metastases from early tubular breast carcinoma. *Int J Dermatol* 2008;**47**:1311–3.
3. Stone OJ. A mechanism of peripheral spread or localization of inflammatory reactions—role of the localized ground substance adaptive phenomenon. *Med Hypotheses* 1989;**29**:167–9.
4. Kawakami T, Kawanabe T, Soma Y. Granuloma annulare-like skin lesions as initial manifestation in a Japanese patient with adult T-cell leukemia/lymphoma. *J Am Acad Dermatol* 2009;**60**:848–52.
5. Hu SC-S, Chen G-S, Lan C-CE, et al. Cutaneous metastases from different internal malignancies: a clinical and prognostic appraisal. *J Eur Acad Dermatol Venereol* 2008;**22**:735–40.

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